

FLUORESCENT PAINT BY MARIO AGRIFOGLIO. STUDY OF THE TECHNIQUE AND MATERIAL CHARACTERIZATION THROUGH NON-INVASIVE ANALYSES

Serena Francone*, Marco Gargano**, Letizia Bonizzoni**, Nicola Ludwig**

* Freelance Conservator of Contemporary Art, Como IT, materiadarte@gmail.com

** Department of Physics, Università degli Studi di Milano, via Celoria 16, Milan IT

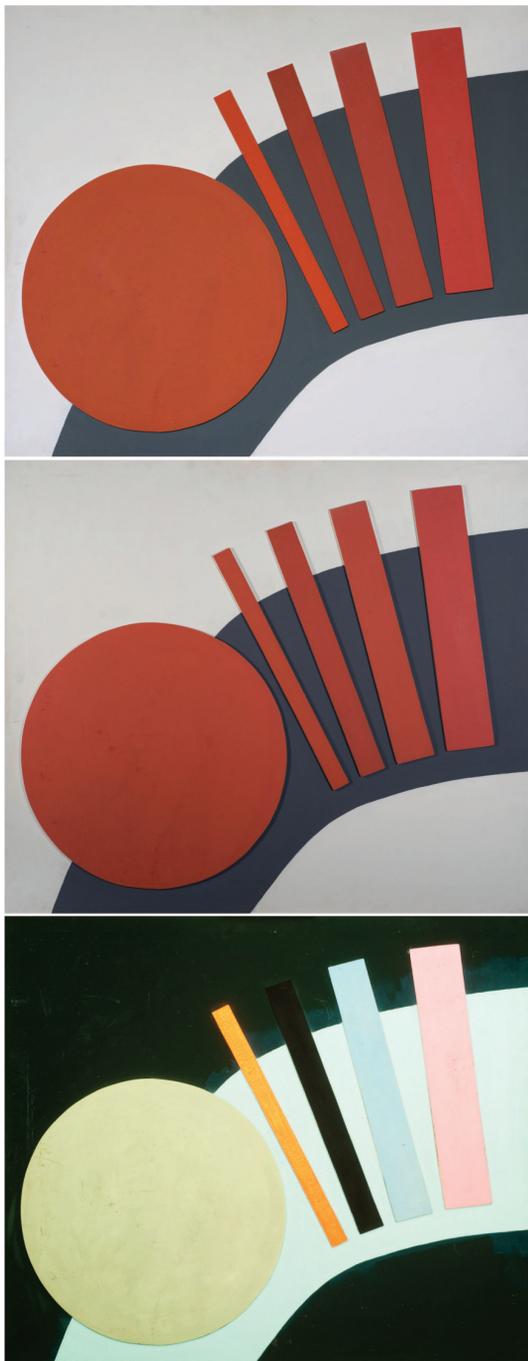


Fig.1 Mario Agrifoglio, *Opera 154* (1978), courtesy Alberto Neri collection. Consider that the colours of the image have been converted from RGB to CMYK in the printing process.

The phenomenon of metamerism was investigated in relation to the painting technique of the artist Mario Agrifoglio, who began experimenting with fluorescent paint in the Seventies. The geometric-abstract works by Agrifoglio are characterized by a balanced study of the mixing and layering of fluorescent and non-fluorescent materials, with attention to the aesthetic effect obtained in visible light and the effect of tone “convergence and divergence” under UV light, thus leading to a unique play of light and a completely different colour perception, depending on the type of light source.

In contemporary art, metamerism has to be taken into account to not affect the commercial value of the works with interventions of retouching. The case of Agrifoglio’s paintings presents further issues: metamerism defects of retouching would inevitably compromise the aesthetic message both in white light and in black light. Therefore, it is essential to identify the painting technique and characterize the materials used by the artist. Thanks to the collaboration of the artist’s son, it was possible to analyze some paintings on canvas and prints, as well as a series of materials (fluorescent vinyl and acrylic colours, inks, mixtures) and samples prepared by Agrifoglio himself during the experimentations.

The artworks were photographed using A illuminant (incandescent light, colour temperature 3000K), D50 illuminant (indirect sunlight) and UV lamp inducing visible fluorescence.

Measurements were then performed by means of a Fiber Optic Spectrometry (Ocean optics HR4000 spectral resolution 2.7 nm) with a Xenon Arc Lamp as a light source both in Reflectance mode (FORS) and in emission mode, using in this case a 400 nm short pass filter. Sampled areas were chosen among those that showed uniform visible fluorescence. Reflectance data obtained in the 380-780 nm range were considered as those related to the fluorescence emission of the materials and were employed to identify fluorescent materials used by the author. This was accomplished through a comparison with existing databases and with the reference measurements performed on samples from the artist’s studio.

Beside the FORS measurements, XRF analyses were also executed in the same areas, in order to integrate the characterization of the painting materials.

The analyses carried out have allowed us to both obtain a first characterization of the materials used by the artist and to focus on his painting technique. The analysis with the reflectance technique helped us verify that mixtures of colours are used to obtain chromatically “primary” dyes or dyes of high purity (cyano, red...), in order to obtain chromatic effects which are totally unexpected when exposed to UV light.

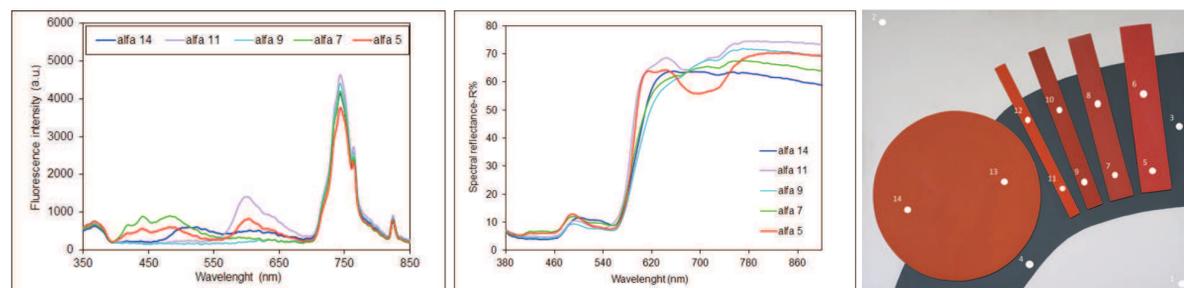


Fig.2 Spectra from the five red areas and spots of measurements carried out on the painting through the Fiber Optic Spectrometry, both in emission and in reflectance mode.

Results

Figure 1 shows photos of the painting *Opera 154* (1978) made under visible light (the first with D50, the second using 3000 K incandescent light) and under UV light. The last one was obtained by filtering blue light emission during the acquisition. This attenuation is necessary to compensate the portion of visible emission by the UV lamp. In this way, the induced visible fluorescence image is well balanced in RGB channels.

Figure 2 shows the fluorescence emission and reflectance spectra of the five red areas and the spots of measurement on the painting. The emission spectra are expressed in arbitrary units and can be useful to qualitatively understand the role of fluorescence in the colour appearance of the pigment. With the use of the same techniques, materials coming from the artist’s studio were also analyzed in order to characterize them.

Finally, X-ray fluorescence analysis detected the presence of almost the same elements in each measuring point, predominantly titanium and zinc, both attributable to the lower layers of preparation.

Acknowledgments

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